REMARKS

Claims 2-20 and 22-24 are all the claims pending in the application. By this Amendment, new claims 22-24 are added.

Claims 2-7, 10, 13-14 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishida (U.S. Patent No. 5,497,432; hereinafter "Nishida") in view of Kuehl (U.S. Patent No. 5,428,692; hereinafter "Kuehl"). Claims 8-9, 11-12 are allowed over the prior art. Applicants add the new claims to more fully claim the invention and submit the arguments below in traversal of the claim rejections.

Kuehl relates to an optical character recognition system. The system reads handwritten characters using recognition tables derived from a pattern bit map and from a skeleton pixel matrix. The recognition tables describe the character in terms of the relative position of the pixels along the borders of the character and provide a plurality of recognition strings.

Applicants respectfully submit that claim 2 is believed to be patentable over Nishida and Kuehl at least because these references fail to teach, suggest, or provide motivation for:

A shape descriptor extracting method comprising:
(a) extracting a skeleton from an input image;
(b) obtaining a first list of straight lines by connecting pixels based on the extracted skeleton; and
(c) determining a second list of straight lines obtained by normalizing the first list of straight lines as a shape descriptor,
wherein (b) comprises connecting pixels having a same level on direction maps of a plurality of directions to obtain the first list of straight lines.

In the Office Action, the Examiner concedes that "Nishida fails to teach obtaining a first list of straight lines by connecting pixels having a same level on direction maps of a plurality of directions, based on the extracted skeleton." The Examiner, however, states that Kuehl "teaches the functional equivalence" of what is lacking in Nishida. Applicants submit that Kuehl does not teach, suggest, or provide motivation for connecting pixels having a same level on direction maps of a plurality of directions to obtain the first list of straight lines.

Kuehl discloses computing connection codes from a skeleton map of a scanned character. Col. 8, lines 58-62. The connection codes are "prescribed codes which represent a combination of the length and number of column over which the skeleton extends in a row and the connection of the pixels in that row (whether one or more) to the pixels in the adjacent rows, both above and below the row being scanned." Col. 8, line 67 - col. 9, line 5. In other words, the connection codes indicate the *relative disposition* of each pixel relative to other pixels on a row-by-row basis, of a skeleton.

In the section of Kuehl cited by the Examiner, the reference discloses a program for the generation of connection codes from the pixel skeleton map. Col. 11, lines 4-60. In this section and in other sections which discuss connection codes (col. 8, line 58 - col. 9, line 5), there is no

mention of *connecting* pixels. As mentioned above, the connection codes are merely *descriptive* elements used in describing the *relative disposition* of all the pixels in a skeleton map. With such descriptive information, Kuehl makes no mention of *connecting* pixels based on the connection codes.

Moreover, Kuehl makes no mention of direction maps whatsoever. Thus, Kuehl cannot possibly connect pixels having a same level on direction maps of a plurality of directions. Rather, Kuehl merely provides a mechanism for describing the location of adjacent pixels without consideration of levels or direction maps.

For at least the above reasons, claim 2 is believed to be patentable.

Claims 3-7, 10, 13, 14, and 20, which depend from claim 2, are patentable for at least the reasons submitted for claim 2.

New claims 21-24, which depend from claim 2, are added and are believed to be patentable for at least the reasons submitted for claim 2 and for the features recited therein.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Seok-Won Stuart Lee*
*Granted limited recognition under 37 C.F.R. § 11.9(b), as shown in a copy of the same filed on February 1, 2005, at the U.S.P.T.O.

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